May 1, 2019

Marlene H. Dortch, FCC Secretary
Office of the Secretary
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

Re: FCC NOTICE OF PROPOSED RULEMAKING AND ORDER In the Matter of Allocation and Service Rules for the 1675–1680 MHz Band (WT Docket No. 19-116), dated April 18, 2019.

Dear Ms. Dortch,

Please accept this letter from the Meteorological Service of Canada (MSC) as a response to the subject Notice on behalf of Environment and Climate Change Canada (ECCC), a department of the Government of Canada. The MSC is the authoritative source of weather warnings in Canada and provides Canadians with access to vital weather and environmental information 24 hours a day, seven days a week. The MSC is reliant on the NOAA Geostationary Operational Environmental Satellites (GOES) Data Collection System (DCS) and GOES satellite imagery to meet its operational mandate. We wish to express our concern surrounding the possible adoption of the subject notice, which proposes to reallocate the 1675-1680 MHz frequency band for shared use by non-federal fixed or mobile services on a co-primary basis with incumbent federal operations in the meteorological-satellite (space-to-Earth) service.

GOES DCS is a principal telecommunications tool for several of our national in situ environmental monitoring networks, including weather stations, hydrometric monitoring sites, marine data buoys, and geomagnetic observatory stations - many in remote locations without redundant means of communication. Data from the more than 1800 Data Collection Platforms (DCPs) currently in operation in Canada are accessed through Data Collection Platform Reports (DCPR) via the US National Weather Service (NWS) gateway at the NOAA Satellite Operations Facility (NSOF) in Suitland, MD, and through the Emergency Data Distribution Network (EDON) of the U.S. Geological Survey (USGS) in Sioux Falls, SD. This access is critically dependent on uninterrupted reception at the primary receiving sites in the US and data redistribution via NOAA and USGS servers. Any disruption at the Direct Readout Ground System (DRGS) sites in the US will result in degradation of the data distributed to users (including the Canadian government and counterpart US agencies) through the Internet, dedicated land lines, or High-Rate Information Transmission (HRIT) channels.

ECCC will be reducing its reliance on Internet-based access to GOES DCS servers in the US as Internet access can be potentially stopped at multiple points in the chain of communications. Enhanced resiliency of our access to GOES DCS data will be achieved by installing DRGS at ECCC locations within Canada. This initiative to gain more direct access to GOES DCS data and diversify means to access DCS data is a result of two interruptions in the terrestrial Internet feed. The two data denial instances that affected ECCC operations were due to stoppages that occurred at firewalls with changes implemented regarding security

certificates and due to a misconfiguration during maintenance on networking equipment. Furthermore, ECCC seeks to reduce its reliance on terrestrial Internet-based DCS access during catastrophic events when greater uncertainties in performance levels of Internet-based communications arise. Catastrophes are the most critical time when GOES DCS or GOES imagery is required.

Given that the downlink frequency for international GOES DCS data is 1680.2 MHz (with a 400 MHz bandwidth), ECCC is concerned that future DRGS within Canada could be subject to adjacent band interference from fixed or mobile services operating in the 1675-1680 MHz band. This could limit our ability to operate DRGS Earth stations in Canada, particularly in proximity to the US-Canada border.

As in the US, Canada uses GOES imagery as the principal tool for synoptic-scale detection and tracking of weather systems including severe weather events. The imagery is acquired through direct readout antennas located across Canada and is used by MSC forecasters for the generation of weather forecasts and warnings, and by others to support forest fire detection and weather-sensitive operations. The ECCC satellite reception network currently operates four GOES rebroadcast (GRB) reception antennas in three locations (Dorval, Quebec; Toronto, Ontario; and Vancouver, British Columbia). It also operates a GOES Variable (GVAR) reception antenna in Dorval. All of these fixed earth receiving stations are located within 40 miles of the US border, and face south with low elevation angles. Given these characteristics, and the proximity of the GRB and GVAR downlink frequencies (centered at 1685.7 MHz and 1686.6 MHz, respectively) to the 1675-1680 MHz band, ECCC is concerned about the potential for adjacent band interference from non-federal US fixed or mobile operations deployed in proximity to the US-Canada border. It is plausible to foresee that such operations could cause harmful interference to our current and future GOES Earth stations. Furthermore, the Toronto earth stations are subject to commonly occurring anomalous propagation effects from temperature inversion over Lake Ontario. The impact of anomalous propagation from a non-federal fixed or mobile transmitters should be considered in interference testing scenarios.

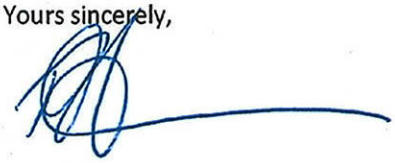
In addition to the concerns expressed above, ECCC would also like to note that numerous other departments of the Government of Canada rely on continued access to GOES DCS data and/or GOES satellite imagery. The dependencies of these departments on GOES data are outlined in a comment submitted by the Government of Canada in response to proceeding ET RM-11681.[1]

As noted in the subject notice (para. 17), the record for this matter will be informed by an interference study that NOAA is currently conducting using Spectrum Relocation Fund support. ECCC is concerned that this notice is being considered for adoption prior to the conclusion of the NOAA study. Without access to the results of this study, ECCC is concerned that proposed protection measures for incumbent federal services may be insufficient to ensure that US federal Earth stations are not subject to harmful interference, and that existing and planned Earth stations within Canada could be subject to harmful interference, which would be in contravention of the terms of agreements currently in force for international coordination of AWS operations (see para. 52 of the subject notice).

[1] See the appendix of the FCGEO Response to RM-11681 (https://www.fcc.gov/ecfs/filing/10621943011478).

Given the critical role that GOES data play in the production of accurate weather forecasts and warnings and the resulting impact on public safety, as well as the vulnerability and latency of terrestrial Internet based data delivery from federal US ground stations (particularly during catastrophic events), ECCC wishes that the FCC and US Administration does not modify the current US table of allocations to re-allocate or share the 1675-1680 MHz band for non-federal fixed or mobile services. We recommend to the FCC that it not adopt this Notice of Proposed Rulemaking until further information is available to clearly define protection measures that will ensure the adequate and effective protection of GOES DCS, GRB and GVAR reception facilities both within the US and in Canada.

Yours sincerely,



David Grimes
Assistant Deputy Minister
Meteorological Service of Canada
Environment and Climate Change Canada

CC:
Susan Hart, Director General, Spectrum Management Operations Branch, Innovation, Science and Economic Development Canada
David Harper, Director General, Monitoring and Data Services Directorate
David J. Redl, Assistant Secretary for Communications and Information and NTIA administrator, Department of Commerce
Dr. Neil Jacobs, Assistant Secretary of Commerce for Environmental Observation and Prediction, performing the duties of Under Secretary of Commerce for Oceans and Atmosphere